Pediatric Medical Emergencies: Seizures

I. All Provider Levels

1. Follow the General Patient Care guidelines in section A1.

2. If no breathing is present, then position the airway and start bag valve ventilations using 100% oxygen.

   A. Refer to the vital signs chart for appropriate rates.

3. If breathing is adequate, place the child in a position of comfort and administer high flow, 100% oxygen.

   A. Use a non-rebreather mask or blow by as tolerated.

4. If the airway cannot be maintained initiate advanced management using a combi-tube.

> ***Note Well:*** *Do not use a combi-tube on a patient younger than 16 years of age or less than 5-feet tall.*

> ***Note Well:*** *The EMT-I and EMT-P should use ET intubation.*

5. Assess circulation and perfusion.

6. Assess patient's body temperature

7. Call for ALS support. Initiate care and do not delay transport waiting for an ALS unit.

I. All Provider Levels (continued)

8. Establish an IV of normal saline.

Note Well: *BLS Providers cannot start an IV on a patient less than eight years of age*

Note Well: *If IV access cannot be readily established and the child is younger than 6 years of age then ALS Providers only may proceed with IO access. If the child is over 6 years of age, then contact Medical Control for IO access.*

Note Well: *An ALS unit must be en route or on scene.*

9. If opiate overdose is suspected, administer Naloxone (Narcan) at 0.1 mg/kg IM (maximum single dose 2.0 mg)

   A. Contact Medical Control for additional doses.

Note Well: *The EMT-I/EMT-P can administer Naloxone (Narcan) at 0.1 mg/kg IV or IO if available. For ET administration, double the dose to 0.2 mg/kg.*

Note Well: *If accidental or intentional overdose or ingestion is suspected and the provider is unsure of treatment modalities or effects Poison Control may be contacted at 202-625-3333 or through channel H11.*

I. All Provider Levels (continued)

10. Determine blood glucose level.

    A. If the blood glucose level is lower than 80 mg/dl, the child is older than 12 years, and the child is able to control their airway, administer half a tube of oral glucose (approximately 12 gm).

    B. If blood glucose level remains lower than 80 ml/dl and there is no change in the patient's mental status after the initial dose, oral glucose may be repeated once at the same dose (*Med Control Option Only*).

> ***Note Well:*** *The EMT-I/EMT-P should administer dextrose via IV if the oral glucose cannot be administered safely. However, oral glucose is the preferred treatment in the patient that is awake and able to control their airway.*

11. Assess vital signs.

II. Advanced Life Support Providers

1. Initiate cardiac monitoring.

2. If the blood glucose level is lower than 80 mg/dl, administer dextrose via IV/IO route as follows:

   A. $D_{50}W$ at 1.0 ml/kg for children older than two years

   B. $D_{25}W$ at 2.0 ml/kg for children younger than two years

   C. $D_{10}W$ at 5.0 ml/kg for neonates

3. If blood glucose level is lower than 80 mg/dl and vascular access is unavailable, administer glucagon via IM injection.

   A. Glucagon, 0.5 mg for patients less than 25kg

   B. Glucagon, 1.0 mg for patients greater than 25kg

> ***Note Well:*** Do not administer Diazepam **AND** Midazolam. Contact medical control for further instructions.

4. If seizure continues: Administer Diazepam (Valium) at 0.2mg/kg (maximum single dose 10 mg) via IV or 0.5 mg/kg (maximum single dose 10 mg) via rectal route. (*Med Control Option Only*)

   A. If seizure continues: Diazepam may be repeated once. (*Med Control Option Only*)

> ***Note Well:*** Diazepam should be administered slowly over 1-2 minutes to avoid respiratory depression.

> ***Note Well:*** *Constantly reassess for signs and symptoms of respiratory depression when giving Diazepam (Valium) and up to one hour after administration.*

II. Advanced Life Support Providers (continued)

> ***Note Well:*** *In the event of a provider induced benzodiazepine overdose, administer Flumazenil 0.01 mg/kg IV/IO over 30 seconds. Repeat as needed every minute. Maximum single dose is 0.2 mg and maximum total dose is 1mg.* (*Med Control Option Only*)
>
> ***Caution: Flumazenil may induce seizures, particularly in patients with both a tricyclic antidepressant overdose and benzodiazepine overdose.***

> ***Note Well:*** Do not administer Diazepam **AND** Midazolam. Contact medical control for further instructions.

5. If seizure continues and diazepam has not been administered: Administer Midazolam (Versed) at 0.1mg/kg IV/IM (maximum single dose 5mg) or 1mg/kg PR. (*Med Control Option Only*)

> ***Note Well:*** Midazolam should be administered slowly over 1-2 minutes to avoid respiratory depression.

   A. Midazolam may be repeated once (*Med Control Option Only*)

   B. The total dose should not exceed 10mg.

6. Assess the patient for signs and symptoms of respiratory depression and maintain airway and breathing accordingly.

II. Advanced Life Support Providers (continued)

7. Repeat blood glucose determination 1 to 2 minutes after dextrose or glucagon administration.

8. If blood glucose level remains lower than 80 ml/dl and there is no change in the patient's mental status after the initial dose

   A. Administer a single additional dose dextrose at the same dosage administered previously (*Med Control Option Only*)

9. Assess patient's vital signs.

III. Transport Decision

1. Contact medical control for further instructions.

2. Initiate transport to the nearest appropriate facility as soon as possible.

3. Perform focused history and detailed physical exam en route to the hospital.

4. Expose the patient only as necessary and maintain the child's body temperature.

5. Reassess at least every 3-5 minutes, more frequently as necessary and possible.

IV. The Following Options are Available by Medical Control Only

1. Diazepam (Valium), 0.2 mg/kg (maximum single dose 10 mg) via IV

2. Diazepam (Valium), 0.5 mg/kg (maximum single dose 10 mg) via rectal route.

3. Midazolam (Versed), 0.1 mg/kg IV/IM (maximum single dose 5 mg) or 1mg/kg PR, to a total dose not exceed 10 mg.

4. Flumazenil, 0.01 mg/kg IV/IO over 30 seconds, repeated as needed every minute for provider induced benzodiazepine overdose.

   A. Maximum single dose is 0.2 mg

   B. Maximum total dose is 1 mg.

5. Additional dose of Naloxone (Narcan) at 0.1 mg/kg IM (maximum single dose 2.0 mg) if suspected opiate overdose.

6. Additional dose of Oral Glucose at 12 gm

7. Additional dose of Dextrose

   A. $D_{50}W$ at 1.0 ml/kg for children older than two years

   B. $D_{25}W$ at 2.0 ml/kg for children younger than two years

   C. $D_{10}W$ at 5.0 ml/kg for neonates

8. IO access for patients greater than 6 years of age.

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